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Takehiko Tanabu

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MCDERMOTT WILL & EMERY LLP
600 13TH STREET, N.W.
WASHINGTON, DC 20005-3096

EXAMINER

SAUNDERS JR, JOSEPH

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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte TAKEHIKO TANABU and HIROSHI YANO

Appeal 2009-003486
Application 10/518,904
Technology Center 2600

Decided: February 1, 2010

Before MAHSHID D. SAADAT, CARLA M. KRIVAK, and
ELENI MANTIS MERCADER, *Administrative Patent Judges*.

SAADAT, *Administrative Patent Judge*.

DECISION ON APPEAL

Appellants appeal under 35 U.S.C. § 134(a) from a Final Rejection of claims 1, 2, 5, and 6. Claims 3 and 4 have been canceled. We have jurisdiction under 35 U.S.C. § 6(b).

We affirm.

STATEMENT OF THE CASE

Appellants' invention relates to a loudspeaker having an integrated yoke-frame assembly for preventing sound output errors and reducing the size of the speaker (Spec. 2-3).

Claim 1 is exemplary of the claims on appeal:

1. A loudspeaker comprising:
 - a hollow frame having opening sections at its upper side and lower side;
 - a hat-shaped yoke whose both ends are supported by an inner wall of the frame;
 - a ring-shaped first magnet being coupled with an upper surface of an outer periphery of the yoke;
 - a columnar second magnet being coupled with an inner bottom of a middle section of the yoke;
 - a ring-shaped first plate being coupled with an upper surface of the first magnet;
 - a plate-type second plate being coupled with a lower surface of the second magnet;
 - a first diaphragm whose outer periphery is fixed to an upper opening of the frame;
 - a second diaphragm whose outer periphery is fixed to a lower opening of the frame;
 - a ring-shaped first voice coil whose one end is fixed to the first diaphragm and other end is placed at a first magnetic gap formed between an inner peripheral surface of the first plate and an outer peripheral surface of the middle section of the yoke; and

a second voice coil whose one end is fixed to the second diaphragm and other end is placed at a second magnetic gap formed between an outer peripheral surface of the second plate and an inner peripheral surface of the middle section of the yoke,

wherein the frame is integrated with the yoke in assembling the frame, and

an upper surface of the yoke is integrated as a reference plane in mounting for a mold of the frame, thereby an interval-accuracy between the first diaphragm and the yoke can be improved as compared with an interval-accuracy between the second diaphragm and the yoke.

The Examiner relies upon the following prior art in rejecting the claims on appeal:

Han	US 2002/0071590 A1	Jun. 13, 2002
Miyamoto	US 6,744,895 B2	Jun. 1, 2004

Claims 1, 2, 5, and 6 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Miyamoto in view of Han.

Rather than repeat the arguments here, we make reference to the Appeal Brief (filed December 18, 2007), the Reply Brief (filed May 19, 2008), and the Answer (mailed March 19, 2008) for the respective positions of Appellants and the Examiner. Since no claims are argued separately from the others, we decide this Appeal on the basis of representative independent claim 1. *See* 37 C.F.R. § 41.37(c)(1)(vii) (“When multiple claims subject to the same ground of rejection are argued as a group by appellant, the Board may select a single claim from the group of claims that are argued together to decide the appeal with respect to the group of claims as to the ground of rejection on the basis of the selected claim alone.”). Further, only those arguments actually made by Appellants have been considered in this

decision. Arguments which Appellants did not make in the Briefs have not been considered and are deemed waived. *See id.*

ISSUE

Appellants contend that adding the integrated frame structure of Han to the speaker disclosed in Miyamoto cannot improve the interval-accuracy between the first diaphragm and the yoke since Han fails to disclose a diaphragm (App. Br. 9). Specifically, Appellants argue that the Examiner's position regarding the obviousness of using the frame of Han in place of the frame of Miyamoto is not supported by evidence of record (App. Br. 9-10). Thus, Appellants' contentions present the following issue:

Have Appellants shown that the Examiner erred in combining the teachings of Miyamoto with Han to arrive at the claimed invention?

FINDINGS OF FACT

The following findings of fact (FF) are relevant to the issue involved in the appeal.

Miyamoto

1. Miyamoto relates to a loudspeaker that produces sufficient volume without increasing the size of the loudspeaker. (Col. 1, ll. 65-67.)
2. As shown in Figure 1, Miyamoto discloses various elements of the claimed loudspeaker such as the frame or case 21, the first diaphragm 27, and the second diaphragm 30, wherein the yoke or the pole piece 22 is secured to the case 21. (Col. 2, ll. 37-65.)
3. Figure 1 of Miyamoto is shown below:

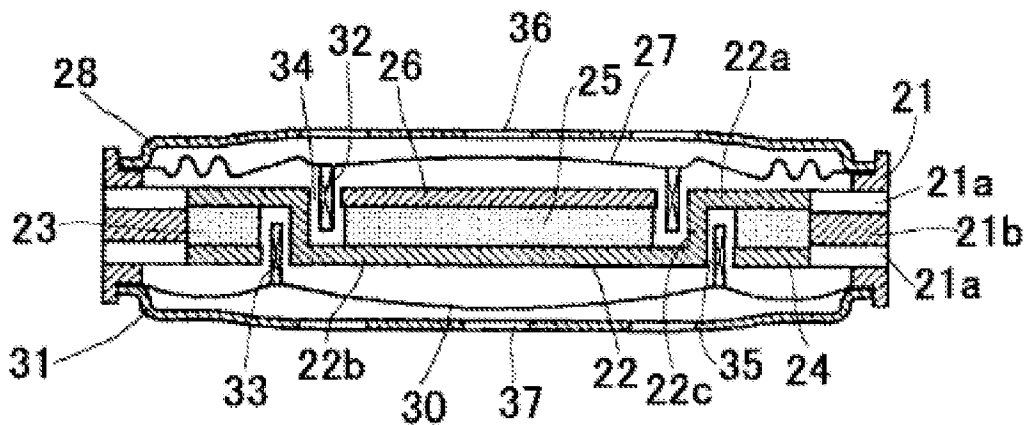


Figure 1 of Miyamoto shows the magnetic components and the diaphragms in relation with the yoke.

Han

4. Han relates specifically to the magnetic circuit of a micro speaker wherein the yoke and the magnet are secured to the speaker frame by using an injection molding process in order to securely couple these components to form a slim speaker construction. (Abstract; ¶¶ [0011]–[0012].)

5. Figure 2 of Han is shown below:

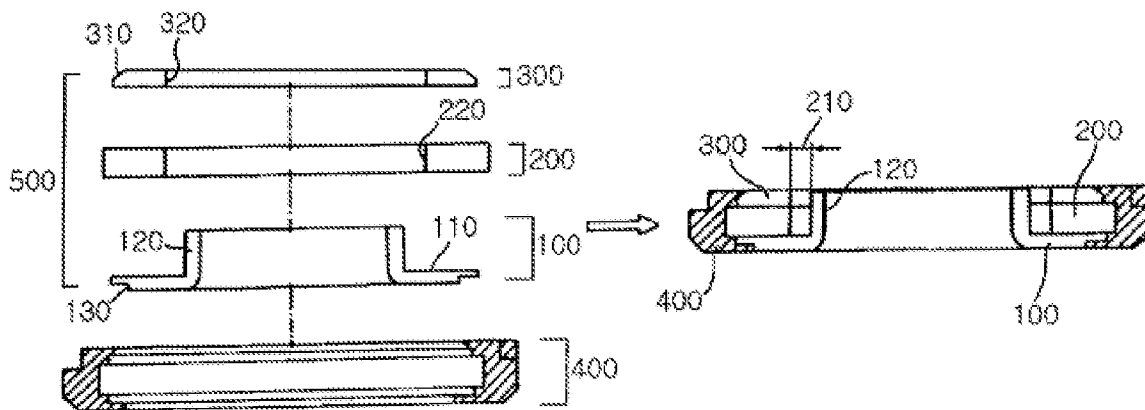


Figure 2 of Han shows the formation of the speaker frame using the yoke as a reference plane for the injection molding process.

6. Han discloses that frame 400 secures the magnetic circuit 500 including the yoke part 100, the magnet 200, and the upper plate 300 into an integrated form. (¶¶ [0025]-[0026].)

7. In order to form the integrated frame structure of Figure 2, Han further shows in Figure 6 that the upper and the lower surfaces of the yoke part 100 are used as reference planes in mounting the frame mold using the upper and lower dies 410 and 420 secured by the coupling means 430. (¶ [0031].)

PRINCIPLES OF LAW

Section 103 forbids issuance of a patent when “the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains.”

KSR Int'l Co. v. Teleflex Inc., 550 U.S. 398, 406 (2007).

“The combination of familiar elements according to known methods is likely to be obvious when it does no more than yield predictable results.” *Leapfrog Enters., Inc. v. Fisher-Price, Inc.*, 485 F.3d 1157, 1161 (Fed. Cir. 2007) (quoting *KSR*, 550 U.S. at 416). The *KSR* Court further recognized that “[w]hen there is a design need or market pressure to solve a problem and there are a finite number of identified, predictable solutions, a person of ordinary skill has good reason to pursue the known options within his or her technical grasp.” *KSR*, 550 U.S. at 421.

When the claimed and prior art products are identical or substantially identical, the burden shifts to applicant to prove that the prior art products do not necessarily or inherently possess the characteristics of the claimed product. *In re Best*, 562 F.2d 1252, 1255 (CCPA 1977); *see also In re King*,

801 F.2d 1324, 1327 (Fed. Cir. 1986); *In re Ludke*, 441 F.2d 660, 664 (CCPA 1971); *In re Swinehart*, 439 F.2d 210, 212-13 (CCPA 1971).

ANALYSIS

Initially, we observe that Appellants indicate that the claimed improvement in an interval-accuracy is achieved by integrating the yoke and the frame (App. Br. 9). In other words, Appellants have not identified any other structural feature, either recited in claim 1 or disclosed in the Specification, which would have provided the claimed improvement in the interval-accuracy. Therefore, as asserted by the Examiner (Ans. 15-16), combining the magnetic circuit of Han having the integrated yoke/frame structure with the speaker of Miyamoto would have achieved the same type of improvement since the combination results in a structure that is substantially identical to the claimed structure. As such, the principle outlined in *Best* places on Appellants the burden of showing that such resulting structure would not necessarily produce the claimed benefit of improving an interval-accuracy between the first diaphragm and the yoke.

Therefore, based on our review of Han, we disagree with Appellants' argument (App. Br. 9; Reply Br. 4) that the combination of Han's speaker frame with the speaker of Miyamoto does not result in the claimed subject matter since Han includes no discussion of a diaphragm. We find that the Examiner has properly identified all the claim elements in Miyamoto except for the frame integrated with the yoke such that the upper surface of the yoke functions as a reference plane for a mold of the frame (Ans. 4). We also find the Examiner's reliance on Han's magnetic circuit for the missing element in Miyamoto to be reasonable. We also agree with the Examiner's

conclusion (*id.*) that integrating the yoke with the frame, as taught by Han, in the speaker of Miyamoto provides the same type of improvement in the interval-accuracy that Appellants attribute to such integrated yoke/frame construction (Ans. 5-6).

Han is concerned with making the magnetic circuit of a micro speaker slim by securely coupling the circuit components to a frame formed by injection molding (FF 4). Han further shows that the yoke assembly is integrated with the frame using the yoke surface as a reference plane during the molding process for forming the frame (FF 5-7). As stated by the Examiner (Ans. 15-16), while the focus of Han's disclosure is not on other components of the speaker, such as the diaphragms, one of ordinary skill in the art would have used the slim magnetic circuit of Han in Miyamoto's speaker, which includes the claimed diaphragms and their relationship with the speaker components (FF 2-3). Thus, the speaker of Miyamoto could be made smaller in size by using Han's slim magnetic assembly wherein the frame is integrated with the yoke, which also results in improved interval-accuracy between the yoke and the first diaphragm.

With respect to Appellants' challenge to the combinability of the references and whether one of ordinary skill in the art would have used the magnetic circuit of Han in the speaker of Miyamoto (App. Br. 10; Reply Br. 5), the Examiner responds that both references are concerned with making a more efficient speaker without increasing its size (Ans. 16). We agree with the Examiner's finding that each reference states a desire for improving the speaker sound quality without increasing the speaker size (FF 1, 4). Therefore, based on the principles outlined in *KSR*, using a well-known magnetic circuit available to the skilled artisan in the speaker of Miyamoto

would have been obvious as it yields the predictable result of improving the speaker by further securing the coupled components in a slim speaker construction. In other words, the integrated yoke/frame assembly of Han presents an identified, predictable solution, within the technical grasp of a person of ordinary skill, to keep the speaker slim while improving its sound quality.

CONCLUSION

For the reasons discussed above and provided by the Examiner, we conclude that Appellants have not shown error in the Examiner's proposed combination of the references. Therefore, we sustain the 35 U.S.C. § 103(a) rejection of claims 1, 2, 5, and 6 over Miyamoto in view of Han.

ORDER

The decision of the Examiner rejecting claims 1, 2, 5, and 6 is affirmed.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a)(1)(iv).

AFFIRMED

babc

MCDERMOTT WILL & EMERY LLP
600 13TH STREET, N.W.
WASHINGTON, DC 20005-3096